Computing News

News from the Computing Division
Fermi National Accelerator Laboratory
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Modernizing the FNALV Cluster

The FNALV Cluster is scheduled to be modernized by adding an AXP (Alpha) system and by removing many of the current VAX systems. The FNALV VAX VMS cluster currently consists of 3 large VAXes (FNALA, FNALF and FNALO), 15 microVAXes (FNALNx), and 2 special purpose VAXstations (VANGO and FNBCKV). The cost of running and maintaining these old VAX systems is no longer justified given their limited CPU power. In addition, the current use patterns on the FNALV cluster indicate that the majority of FNALV computing is interactive in nature and includes such tasks as mail, document handling and code-management. The new system will be configured to facilitate these sorts of activities. Large production-type activities are to be handled on systems which are more suited to handling, such as the UNIX Farms, CLUBS, and FNALU as well as local clusters.

We plan to add a DEC 7630 AXP (Alpha-based) system to the FNALV VMS Cluster. This machine will be connected to the current disk systems and will therefore allow transparent access to mail files, programs, and other important information that currently resides on FNALV. Once this system is established, FNALF, FNALO and most of the FNALNx systems will be removed from the FNALV Cluster, leaving FNALA as the main VAX machine. The DEC 7630 should arrive at Fermilab sometime in July. The removal of FNALF, FNALO and FNALNx machines should occur sometime during the late summer or early fall of this year. As the exact times and dates become available they will be announced via INFO.

The new system, though it is running OpenVMS, will still have an impact on users. The architecture of the AXP machines is different from the VAX machines. It is not possible to run a .EXE built on the VAX machines on the AXP machine or vice versa. It must be recompiled and relinked from the source. It is also not possible to link compiled objects from the AXP machine with libraries built on VAX systems. System and Fermilab-supported products will be rebuilt to run on the AXP system. Users will have to rebuild their own code in order to run on the AXP system. We are working on a recommendation for maintaining software in a mixed-architecture cluster (VAX and AXP systems) and being able to invoke the correct executable for the particular VAX or AXP architecture. Note that this will be automatic for the system-installed software in that MAIL, EVE, etc. will work correctly on both VAX and AXP from the time the systems are installed.

We are also about to upgrade VMS from the current VMS 5.5-2 to openVMS 6.1 on FNALV. This new version of VMS will allow us to run the same operating system on the VAX and AXP systems. The major change is a change in Fortran and C compilers as the Fortran V6.x compiler will become standard

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and the new DEC C V4.0 compiler will be installed. The schedule for the upgrade to OpenVMS 6.1 is not final yet but is expected to occur in the later half of July. The VMS upgrade schedule will be announced in INFO when it is finalized.

In the future we plan to modernize the disk system on FNALV. No significant user impact is anticipated from this change.

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C D

Serial Media Working Group to be Formed

Since 1988, 8mm tape has become the basic serial recording medium at Fermilab. Its low cost has permitted us to record, store, and retrieve unprecedented amounts of raw, reconstructed, and summary data. However, everyone who uses this medium experiences frustration with the tape drive reliability and, to some extent, the reliability of the tape medium itself. Significant effort and money goes into maintaining the numerous 8mm tape systems that we operate.

Recently, new technologies have appeared which seem to offer both cost-effectiveness and improved drive and medium reliability. The Computing Division is setting up a "working group" to study new serial media recording technologies with the goal of finding options for the future. Since such activites can impact the way users do their work both at the lab and at their home institutions, we intend to seek user involvement at the earliest stage of these investigations.

Use of 8mm tape at Fermilab will continue to be supported for as long as is required, even as 9 track tape is still supported but at an ever diminishing level.

It is interesting to note that Fermilab relied on 9 track open reel tape from 1972 to 1990. During this period there were two changes within that technology -- from 800 bpi to 1600 bpi and from 1600 bpi to 6250 bpi. From 1989 to 1994 (and certainly continuing for at least a couple of more years), 8mm tape HAS BEEN the main recording medium and, so far, it has undergone one change, to "double density". That we are beginning to explore alternatives so soon is another manifestation of the accelerating pace of change in computing technology.

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C D

Fermi World Wide Web Home Page

As many users are already aware, the Fermilab Home Page (URL: http://www.fnal.gov/) on World Wide Web (WWW) has been re-designed to provide a better ''front door" to the many electronic visitors that come to Fermilab via WWW (see Figure 1.). The new Fermilab Home Page includes the entrance to the three main exhibit areas, each with a link to additional material. The main exhibit areas are: *The Nature of Nature: The Science of High Energy Physics*, *Fermilab: America's Research Laboratory on the Energy Frontier*, and *Fermilab at Work: An Insider's Guide to Lab Activities, Info and Schedules*. In addition, a special *News Release* area has been added to inform the public about important topics.

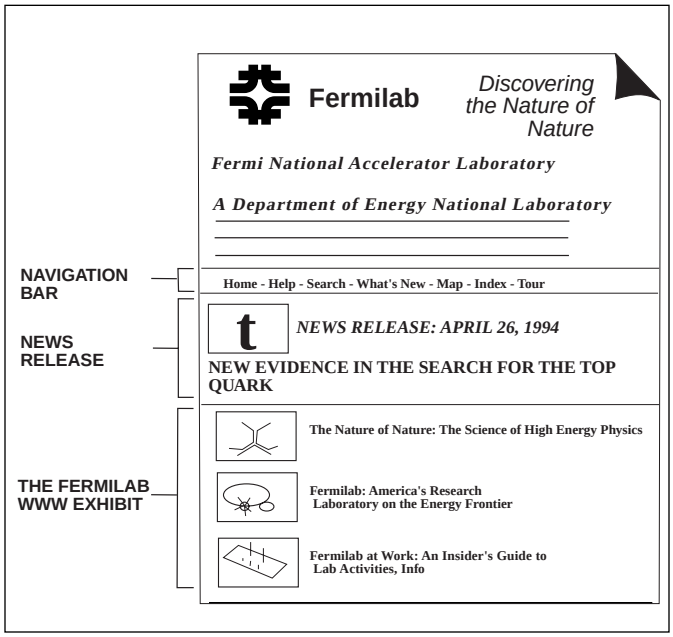

Figure 1.

The special *News Release* area is currently linked to background material on Fermilab's search for the Top Quark and a downloadable PostScript file of CDF's Fermilab preprint detailing their results.

The *Nature of Nature* and the *Fermilab* exhibit areas contain extensive text, pictures, and diagrams of Fermilab, the accelerator and the experiments for a general audience.

The *Fermilab at Work* area gives access to all the WWW links that were part of the previous Fermilab Home Page as well as quite a few more.

The number of visitors can be quite large as can be seen by Figure 2 which gives the number of pages accessed during the time surrounding the Top Quark announcement.

While the focus of the new Fermilab Home Page is clearly on introducing visitors to our science and our laboratory, there is nevertheless a need to provide quick and easy access for working members of the Fermilab community to the Library, Spires, collaboration pages, and other information resources provided by WWW. If you are one of these individuals, then the *Fermilab at Work* area of the Fermilab Home Page is for you. With most browsers, you may arrange that the browser comes up directly displaying the *Fermilab at Work* page.

To do this for the WWW browser product as distributed at the laboratory, you need only redefine the www_home environmental variable to be:

```
http://www.fnal.gov/fermilab_at_work.html
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On MacMosaic, you should change the Home Page field in the Preferences part of the Options pull-down menu. On VMS (e.g., FNALV), define the logical name www_home to be:

http://www.fnal.gov/fermilab_at_work.html

On UNIX, do a setenv of www_home to:

http://www.fnal.gov/fermilab_at_work.html

When you next access the server, you will point to the *Fermilab at Work* area and be able to directly access the information you wish.

This access point is the one that is most analogous to the "work-in-progress" home pages of SLAC, CERN, and other laboratories. You can add any page's URL to your hotlist for easy access.

We expect to add additional links of interest to laboratory employees and visitors as well as to streamline it so that it is efficient and productive for you to use. We would appreciate any comments, criticisms, or suggestions concerning this area. Please send these to webmaster@fnal.gov.

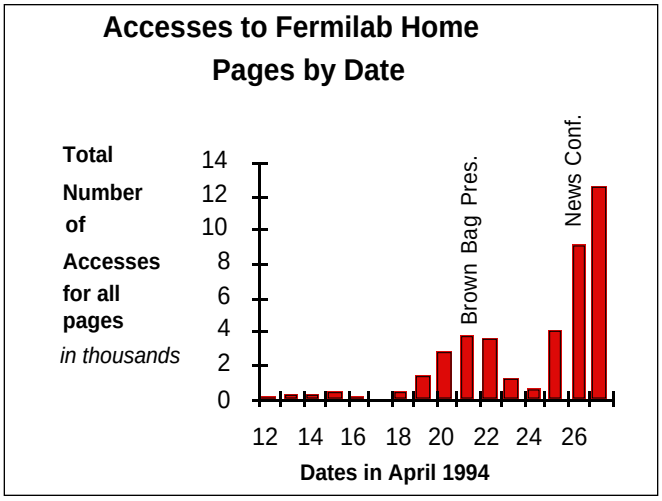

Figure 2.

The effort to re-design the Fermilab Home Page has been the work of many individuals. The concept and content were developed by a working group consisting of Judy Jackson (Directorate) and Liz Quigg (DBI Department). Shelly Malinski (DBI Department) handled the portion concerned with the fnnews server, including the research necessary to get clickable images to work. Phil Stebbings (DBI Department) created some of the clickable images. Laura Appleton, Jonathan Streets, Gary Sergey (OLS Department), Trang Nguyen (DBI Department) and Eric Wicklund (CDF Computing and Analysis) provided considerable help and advice. Matt Wicks and Steve Hanson (Operating Systems Support) provided help with fnnews. Jim Hanlon (Technical Support Services), Brian Charles (LS/Public Information), Cindy Crego (LS/Publications) and Marge Bardeen (LS/Education Office) contributed source material. We are also indebted to the FUE/WWW working group for their input.

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Amdahl Decommissioning: An Evolutionary Step, not an End

Fermilab's Amdahl 5890-600E was decommissioned on December 30, 1993. The system was installed in the summer of 1988, just as the Feynman Computing Center was completed. It began handling production workloads in September of that year. By January, 1989, computing on the Amdahl was in high gear and continued until October, 1993. The Amdahl was originally installed as a 2 processor system and upgraded to a 4 processor complex in July, 1989. Over 500 VAX-equivalent years of computing were delivered to a combination of HEP experiments and others including users in Theoretical Physics, Accelerator Theory, Facilities Department and ES&H while system availability was maintained at levels greater than 95%.

Amdahl users have benefited from the aggressive development and integration of software technology in the areas of automated scheduling, dynamic resource allocation and storage management strategies including high-performance data staging and tape-handling robotics. Fermilab's first STK robotically controlled tape library was integrated into the system in April, 1990, and soon was handling over 90% of all tape mounts. Tape staging techniques were implemented which not only eliminated tape drive contention, but insulated user jobs from 8mm media/drive idiosyncracies. Scheduling algorithms were written to ensure fair allocation of all resources while delivering priority to targeted applications.

Steve Timm of E761 noted: ''E761 had 48 million events in our good data set. The superior input/output capacity of the Amdahl made not only the initial reconstruction but the analysis of the DST's possible in a minimum amount of time. The reliability of the Amdahl and its convenient data handling capacities were significant factors in the successful completion of the E761 analyses in a timely way.''

Steve Wolbers and Harry Melanson of E665 related: ''The Amdahl enabled E665 to rapidly split, filter, reconstruct and analyze its data from the 1987-88 run. We were able to reconstruct our entire 1987-88 data sample in about 2½ months, and it was not difficult during that time to read and split data from over 100 data tapes (6250 bpi) per day. Thirteen graduate students were able to complete their analyses using the Amdahl."

The Amdahl experience will continue to be useful as we deploy new systems based on cost-effective RISC compute engines and distributed architectures necessary to meet the very large HEP demand for processing power. CLUBS (Clustered Large UNIX Batch System) is already providing large-scale batch processing with high-performance I/O and mass-storage subsystems using tape staging and robotic tape library technologies evolved from our Amdahl experience. And these technologies will continue to be developed as key elements of future high performance systems such as those being considered by the Computing for Analysis Project (CAP).

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X Terminals

Tektronix X Terminals Recommended

The Computing Division has placed the Tektronix X terminal line on the recommended list. The NCD line remains on the recommended list. Please refer to document DR0003 for the guidelines and definitions for support of recommended X terminals.

The following three units have been evaluated by the Computing Division:

XP358 - 19" Color Monitor
XP356 - 17" Hi-res color
XP119M - 19" Monochrome

These correspond to the recommended NCD models. Templates for purchasing these models are contained in TN0079, available in the Computing Division library, WH8E. Tektronix carries other models, including multimedia units (with audio support), which are supported by the division and use the same software as the listed units. In essence, these units are recommended and can be used, but the Computing Division will not neccessarily have them on hand. Reference TN0079 or contact the author of this note for a complete list of available models.

Tektronix TekXPress Boot Software

The Tektronix X Terminal boot software, TekXPress, is available from **upd** in SunOS, SGI, and AIX flavors. The current version is 6.3 and Version 7 is scheduled to be released this summer. The VAX kit will be available soon, but we strongly recommend that the groups use a Unix boot host.

To install the software, you will need a copy of the installer's guide for your system. The product numbers for the guides are PU0162-I-platform, where platform is either IBM, SGI, SUN, etc . . .

These guides are available from the Computing Division library. Each guide contains a cover sheet, a two-page description of how to get and install the software from **upd** (the INSTNOTES file from $TEKXP_DIR/ups), release notes for Version 6.3 (from Tektronix), and the Installation Guide for your system.

The following are also available in the library:

PU0162-Ref Reference Guide
PU0162-U User's Guide for Terminal

The installation should go according to the documentation. Contact me if there are any problems.

Merging the Tek terminals into Your Environment

A strategy is being developed for merging the Tektronix terminals into the environments of the different groups at FNAL. This strategy will be posted and presented when it is complete.

Subscribe to the newsgroup fnal.comp.xwg to read the hints, news, release notes, etc. which are posted there.

Jeff Kallenbach, x2210, jeffk@fnal.gov

Postmaster's Corner

The lab's central mail server (FNAL) has been delivering mail on the average of 40,000 messages per week since it came on line May 1st, 1993 (with a total down-time of only 6 hours!) The mailserver was created to reduce electronic mail complexity and is responsible for the delivery of mail to the user and does not impose any restrictions on how mail is read, manipulated, or stored once it reaches its final destination.

Some users may have noticed that FNAL's response was quite slow during the last week of February 1994. During that week, FNAL processed over 80,000 mail messages with 1200 message per hour peaks. Since then, several parameters have been changed to improve FNAL's response. The number of simultaneous SMTP connections was tripled and there are always 20 processes running just to handle incoming DECNet mail connections.

To continue to meet the needs of the user community, the mail server was given a software and hardware upgrade to provide greater reliability and higher availability.

Remember, questions about mail and the mailserver can be sent to postmaster@fnal.gov or fnal::postmaster.

Jack Schmidt, x4060, schmidt@fnal.gov

Services

Computing Division Help Desk

The Computing Division now maintains a Help Desk in the Feynman Computing Center. The current minimum hours are Monday through Friday, 9:00am to 9:00pm and Saturdays 9:00am to 6:00pm. The service includes email, phone, and walk-in assitance. Electronic mail should be sent to helpdesk@fnal.gov. The phone number is x2345. Walk-in assistance is given at the I/O window of the Computer Room on the first floor of the Feynman Center. We strongly encourage users to send their questions, comments, and/or problems via email when appropriate. Email is checked continuously throughout the day.

User questions are currently being fielded by Linda Blomberg, Terry Jones, and Tim Stepanek. They have all been with Data Center Services for several years and have recently undergone special training to prepare them for this task.

This facility replaces the Consulting Office which was located in Wilson Hall. The phone number remains the same and email is being forwarded from both CONSULT and GRIPE to the HELPDESK account.

In the future we intend to expand our coverage to 24 hour, 7 day service. There is also a plan to have a desk-height counter

installed on the west wall near the I/O window for more convenient walk-in service.

For further information or questions, contact the Help Desk, x2345 or send email to helpdesk@fnal.gov.

Joy Hathaway, x3649, hathaway@fnal.gov

What to Expect when Contacting the Help Desk

When you, the user, contact the Help Desk, you can expect to reach someone who is genuinely interested in helping you solve your problem, listen to your comment, or take the information you are offering. Because of the vast array of hardware and software supported by the Computing Division, the person answering the phone may not be able to answer your question immediately. If they cannot answer your question, they will take some information about your problem and how to reach you. They will then assign your problem a tracking number. This is your insurance that your problem will not be forgotten. (Databases never forget!) The Help Desk will then locate the answer to your question and relay it to you. Another alternative, especially if your problem is very involved, is that they will find someone who is available to talk to you about your problem and have that person contact you. When major system outages are reported, we will page the system primary who knows that a page from the Help Desk requires immediate attention.

The Help Desk provides centralized support for computing at Fermilab. This means that if it concerns computing, you can contact helpdesk@fnal.gov or x2345 and someone will assist you. This gives you a great advantage over contacting individual specialists yourself. When one specialist is unavailable, we will find another person who has knowledge in the same area to help you. (The Help Desk keeps track of who's on vacation, on business, out sick, temporarily on a special project, or permanently working in a different area.) By having the specialist contact the user, we are attempting to cut down the amount of time that the user spends playing telephone games (like ''tag'' and ''hot potato'').

If you have any further questions about how the Help Desk operates or what service the Help Desk can provide for your experiment or group, contact Joy Hathaway.

Joy Hathaway, x3649, hathaway@fnal.gov

Consolidation Of Equipment Services

One important change resulting from the recent Computing Division reorganization is the consolidation of several hardware support functions into one group, Equipment Logistics Services. These include equipment tracking, stocking and distribution, and maintenance of hardware contract data. Consolidating these services will make for more efficient operation and better service to users. The Distributed Hardware Group, formerly responsible for contracts, will continue to operate as technical advisor, vendor liaison and service provider for many hardware problems. Both groups will work together to monitor service.

In addition to x4373, you may now communicate service requests via email to syscall@fnal. You are encouraged to use this option and, when possible, include a copy of system error messages or logs. Whatever the means of communication, you will be notified when the request has been routed to a Provider and given a log number.

It is important to understand that equipment under a service contract is identified by serial number. These are not always readily available to users, but other types of Computing Division tags are, and will allow us to determine the serial number. Users should be prepared to provide the Node name or System number (blue tag, Sxxxxx) as well as the FNAL or CD Identification number (yellow tag, 5xxxxx). Please be specific as possible when reporting problems.

General questions or specific requests to add or remove equipment from hardware contract coverage should be directed to the ELS Contract Line, x8726. Questions or concerns regarding any of the ELS services may be directed to John Petriello at x5144 or petriello@fnal or Quickmail.

John Petriello, x5144, petriello@fnal.gov

Terminal Server Upgrade

In April the Emulex terminal servers attached to the port selectors were replaced by a Cisco ASM terminal server, the same model used on the dial-in modem pool (t-s-modem) and on port selector class IP (t-s-lan1). The new server is called t-s-lan2, and will provide LAT and Telnet access. This will affect port selector users who request FNAL, FNALV, and VC.

At the same time, the Vista terminal server (LAN) was replaced by Cisco ASM ports. Port selector users requesting LAN or IP now will land on t-s-lan1.

Port selector class code EMU (for Emulex) was eliminated. Users needing access to Decserver550's should request class code DS550.

Please refer to the ''Cisco Terminal Server Thumbnail Guide'' in the HOWTO folder of INFO for tips on using the Cisco. Call x2345 for more help.

Darryl Wohlt, x2901, darryl@fnal.gov

fnvdeo

Aren't we sometimes tired of preparing HEP presentations the old-fashioned way? Having to choose among dozens of interesting histograms, event displays, or other HEP textual and graphical material in a rigid way (and dealing with a stubborn color printer) is not only time consuming, but it does not allow us to demonstrate more dynamic features of the analysis, such as Ntuple manipulation with Paw or HistoScope.

fnvdeo is an Indigo workstation equipped with a Video Board capable of transmitting part of the screen to a Video Monitor, projector or recorder. This workstation is also equipped with a 1Gb user partition, capable of storing enough data and software tools for extensive demonstration of your software or HEP analysis. **fnvdeo** is a mobile unit which can be rolled into the room you have reserved for your meeting. Wilson Hall only please, if possible! 1 West, recently equipped with a good projector, is the recommended room for this type of activity. Demonstrations which require network capability can also be scheduled. For details and reservations, send e-mail to compdiv@fnal.

Paul Lebrun, x3947, lebrun@fnal.gov

UNIX

Non-grant usage of FNALU/CLUBS

The grant process for FNALU and CLUBS may be too elaborate for small projects and in some cases requires knowledge of resource requirements that is not known until after some initial project development and use of the machines. In addition, there is a need for the casual user to do some small projects on UNIX systems and to have access to machines to try out software packages that are not available on other systems.

Therefore, in order to make access easier, we are allocating a portion of FNALU and CLUBS to "non-grant access" based on the normal account request form. Usage under these terms must be consistent with the following restrictions:

- Disk allocation - 50 Megabyte
- Interactive use of FNALU less than 1% of the total available interactive computing power - roughly 26 VUP-days/month.
- Batch use of FNALU less than 1% of the total available batch computing power - roughly 71 VUP-days/month.
- Use of CLUBS less than 1% of the total available computing power - roughly 165 VUP-days/month.
- Total use of FNALU and CLUBS by an experiment or group less than 5% of the total available computing power.

CPU utilization is averaged over a month. The unit is a VUP which is approximately 1 Mip. Experiments and groups may also obtain accounts on FNALU and CLUBS without a formal grant request. In addition, to the per user limitations described above, they would be granted additional disk for general experiment data, code, etc.

In addition, the total amount of computing by the non-grant users shall take no more than 20-25% of the total computing available, allowing 75-80% of the system to be allocated for users with formal approved grants.

If an individual, group, or experiment determines that these resources are not enough to satisfy their needs, then they must obtain an approved grant.

Signed account requests forms are turned in to the Computing Division in the same manner as other requests -- delivered to the 8th floor Computing Division offices or mailed to MS 120.

Grant Approval

Filling out a grant form is still required for users who require additional resources. Customers should work with their liaisons in preparing grant requests since these allocations are part of the experiments agreements with the Division and should be consistent with their MOU or other agreements with the Division.

Increases for Grants

Requests for disk space increase for Farms, FNALU, or CLUBS should be sent by E-mail to compdiv@fnal.gov or mailed to MS 120. Emergency requests can be handled through the Help Desk at x2345.

Requests for increased CPU resource is handled the same as initial grant requests.

Enforcing of Grant and Non-grant Usage

Enforcement of usage will be monitored in a coarse-grained way weekly and in detail monthly when the monthly resource usage reports are generated. Usage above the authorized amounts will be taken very seriously. Clearly if usage runs above the authorized amount for non-grant usage, an official grant request should be generated.

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Matt Wicks, x8083, wicks@fnal.gov

C D

Status of UNIX Operating System Certification

It is a reality that all software is constantly in the state of being updated. There are always new and better versions of any package that ''will be out soon'', is in beta-test, etc. while other software versions are becoming obsolete and unsupported. It is often confusing to the end user whether or not they should upgrade to the newest release, or stay at the current version of the software.

When it comes to new Operating System and compiler releases, the problems only seem to get worse. In many cases, you are forced to upgrade to the latest OS version because of a desire to obtain the latest (and fastest) hardware. Since these pieces of software can have a profound impact on the operation of everything on the machine, the Computing Division developed a policy on the certification of Operating System Releases. This process also covers compiler releases since they are often released with the OS. The policy is documented in DR0004 available in the Computing Division Library. It is also available via WWW. Using WWW, from the Computing Division page, choose General under Offline, choose Division Recommendations (DR), then DR0004 and select to view the document. Or go directly to URL

http://fnala.fnal.gov:8000/lib/doc/DR0004

The Computing Division fully supports the AIX, IRIX, and Solaris (SunOS) variants of UNIX. The purpose of this article is to let people know what is happening regarding the OS and compiler levels for each of these platforms, especially as it relates to the certification process.

AIX: The current certified versions of the Operating System is AIX 3.2.4. The certified versions of the FORTRAN Compiler is 2.3 and the version of the C Compiler is 1.2.1.8. Most machines on-site, including FNALU, CLUBS, and the IBM Farm are at these levels. IBM has released AIX 3.2.5, which is required for their newer machines that use either the PowerPC or Power2 chips. Although there has been little experience with AIX 3.2.5, executables compiled under AIX 3.2.4 seem to work on AIX 3.2.5 systems.

The Computing Division has decided not to certify AIX 3.2.5 because IBM will be releasing AIX 4.1 fairly soon. AIX 4.1 is a **major** OS release and will have significant differences from any of the AIX 3.2 releases. Fermilab is participating in the beta-program. As of mid-May, we have not received the software but expect it soon. Certification of this release is likely to begin shortly after the beta-program ends.

IRIX: The current certified versions of the Operating System is IRIX 4.0.5. The certified versions of the FORTRAN and C Compiler is 3.10 (also known as 3.5). Most of the central machines are at this level, including CLUBS, FNALU, cdfsga, and most of the SGI Farm. Some systems have moved to IRIX 5. (CDF's SGI Farms are at IRIX 5.1.1.3). Most field systems are also still at IRIX 4.0.5, but there are quite a few that have also moved to IRIX 5.

The Computing Division is in the process of certifying IRIX 5.2, version 3.18 of the C Compiler, and version 4.0.1 of the FORTRAN compiler. The certification process began April 27 and is scheduled to be completed in early June. (The process may be delayed somewhat as there have been issues in obtaining an adequate number of copies of the new OS.) After certification is completed, schedules will still need to be developed for upgrading central and field systems. CLUBS and FNALU may upgrade this summer, although the Farms will probably be later. CDF may upgrade their farms from IRIX 5.1.1.3 to IRIX 5.2.

IRIX 5.2 is the first release of IRIX 5 that is supported across the entire platform line (from the Personal Iris up to the Challenge). It is much faster than previous IRIX 5 releases, but appears to cause little, if any compatibility problems with earlier IRIX 5 releases. Also for those interested in running AFS on SGI machines, IRIX 5.2 is the most appropriate OS version. IRIX 5 is a major OS release and has an entirely new object file format.

Solaris: The current certified version of the Operating System is SunOS 4.1.3 The certified version of the FORTRAN and C Compiler is 2.0.1 Although many of the on site systems are at this OS level, systems are beginning to migrate to Solaris 2.

Solaris 2.3 is the current release of the Operating System. The current release of the FORTRAN and C Compiler is 3.0. Solaris 2 is a major revision of the Operating System and is based on System V Release 4 instead of Berkeley UNIX. The UNIX System Support Group (USS) has done a lot of work with Solaris 2 and feels that Solaris 2.3 is a stable release of the Operating System. USS will propose that the Computing Division begins the certification of Solaris 2.3 after they have completed the IRIX 5.2 certification.

To follow the progress of the certification for all of these platforms, read the fnal.comp.unix news group on a regular basis. This will contain information about what items have been tested and what problems were encountered. A review of this information should be helpful in determining what issues need to be resolved before a specific machine can and should be upgraded. Reviewing the online release notes on a system that has already been upgraded will also be quite helpful in determining the issues that will most directly impact you. In many cases, especially for major releases of the operating system, you will need to obtain new versions of any products that contain libraries and you will need to recompile your code that uses these libraries.

After a release has been certified, contact your USS support contact for arrangements on having your system upgraded. You should also stay in contact with the support people for central systems to understand what testing facilities are available and when upgrades will be scheduled.

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C D

Sun Support

The mission statement of OSS states the following:

The UNIX System Support Group will provide operating system support for all UNIX flavors for which a central core of expertise would enable more efficient and effective management. The current hardware presence at Fermilab dictates that AIX, IRIX and SUN will initially be fully supported by USS.

AIX and IRIX systems have traditionally been provided full support by the Computing Division. To clarify what was meant by full support of Sun systems, the Operating System Support Department, with the approval of the Computing Division Head has issued a policy statement.

The complete policy statement is documented in DR0007. This document is available in the Computing Division Library, WH8E, or via WWW. Using WWW, from the Computing Division page, choose General under Offline, choose Division Recommendations (DR), then DR0007 itself. Or go directly to URL:

`http://fnala.fnal.gov:8000/lib/doc/DR0007`

The following summarizes the major points of the policy statement:

- UNIX System Support will provide basic Operating System support at a level comparable to what is provided for AIX and IRIX. As is always the case, new support services requested of the Computing Division require a Memorandum of Understanding (MOU).

- OSS is committed to the vendor liaison process that has been established with all of our major computing vendors. There will continue to be a Sun vendor liaison who will most likely be a member of the OSS Department.
- UNIX Application Support will provide support of Sun versions of products at a level comparable to what is provided for AIX and IRIX. Any plans to provide site-wide product service through AFS will include Sun versions of the products.

Although Sun is now considered a fully supported UNIX platform it is important to realize that not every activity is carried out on each "fully supported" platform. Thus, the specific support given for each UNIX platform will not be identical. The intent of the new policy is to clearly indicate that Sun systems will be completely supported in all cases where they are an appropriate choice as a computing platform.

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DR0007

Software

News about news

The USENET news client software for UNIX has been reworked recently. Rather than having an individual software package for each of the different news reader programs, a larger integrated package has been built that includes all the news reader programs for UNIX. This product is called **news**.

To use the news package, users should first type

```
setup news
```

which will set up all of the news reader clients. To read **news**, the user then simply needs to type in the name of the particular news reader client that is being used. The clients available in the package are:

nn

nn is a fairly powerful text news reader that uses the news overview database that is currently available from fnnews. This news reader incorporates powerful features both for searching for articles and saving information that is in digests, encoded, or in share archives. It is, perhaps, not for the faint of heart however, as it has a little steeper learning curve than some of the other news readers. Note that this is a beta version of **nn**, and may still have some minor problems. It is expected that news version 1.1 will include the production version of **nn**. Also note that the previous **nn** product is no longer supported and will not work with the fnnews news server. The current **nn** release will only work properly with a news server that supports the News Overview database, so it may not allow you to connect to all NNTP news servers.

trn and rn

This is another text-based news reader. It is a perennial favorite with heavy users of news. The main difference between **rn** and **trn** is that **trn** supports news article threading (that is, following a discussion by the reference lines that are included in articles) so that you may follow through a discussion thread easily. This release includes **trn** version 3.3. It is expected that the next **news** product release will include version 3.4 of **trn**. Note that **trn** and **rn** are really the same program. It just behaves differently depending on how it is invoked.

xrn

This is an X-based GUI news reader. Although it is not as powerful as some of the text-based news readers, it is considered more intuitive by many people. The **xrn** version for AIX and IRIX is built with Motif look and feel. The **xrn** version for Sun is built on Athena widgets, because Motif isn't licensed to most of the Sun systems on site.

xvnews

xvnews is an OpenLook interface GUI news reader. It has a look and feel similar to the current SunOS desktop tools. It is otherwise fairly similar to **xrn**. It is available only for the Sun platform.

Manual pages are available for the news readers, and introductory documents for **nn** and **trn** are also available as part of the news package.

Future releases of news may include some off-line tools for retrieving news and a tool for selecting which news groups you wish to subscribe to.

Supported news readers are also available for VMS systems.

For more information please contact me.

Steve Hanson, x8043, hanson@.fnal.gov

Release 94A of the CERN library

Release 94A of the CERN Program Library should now be available in the test areas of all centrally-supported systems.

A number of subprograms, marked obsolete for many years, were finally deleted with this release of the library. Full details, including suggested replacements are to be found in issue 215 of the CERN Computing Newsletter, available in the FNAL Computing Division library and viewable through WWW, Mosaic etc. The list of deleted routines is sufficiently large that it is worth reproducing here.

CODE	PACKAGE	LIBRARY
B400	POWEZE	KERNLIB
C203	NZEROS	MATHLIB
C204	MULLER	KERNLIB
C206	POLY2	MATHLIB
C308	ELLICK	KERNLIB
C314	THETA1	MATHLIB
C317	ADIGAM	MATHLIB
C319	ELIN1	MATHLIB
C333	CLOGAM	MATHLIB

CODE	PACKAGE	LIBRARY
C341	ALOGAM	KERNLIB
D106	GQUAD	KERNLIB
D600	FRED1	MATHLIB
E206	TRICOF	MATHLIB
E209	SPLIN3	MATHLIB
F100	MATIN1	KERNLIB
F104	SYMINV	MATHLIB
F107	SMXINV	KERNLIB
F108	MUXMAC	MATHLIB
F109	MXEQU	KERNLIB
F110	MXPACK	KERNLIB
F119	DIST	MATHLIB
F120	DIRCOS	MATHLIB
F124	CXJOIN	MATHLIB
K510	RETRNF	KERNLIB
K511	DETACH	KERNLIB
M106	SORTX	KERNLIB
M219	CVT360	KERNLIB
M224	SETFMT	KERNLIB
M251	UFLINT	KERNLIB
M415	UHOLLR	KERNLIB
M416	UBLOW1	KERNLIB
M425	LXBITS	KERNLIB
M430	FTO360	KERNLIB
M440	FIO999	KERNLIB
M435	CHMOVE	MATHLIB
M504	GETSST	MATHLIB
M505	LOCHAR	MATHLIB
N106	TRACEQR	KERNLIB
N202	DUMRZL	KERNLIB
X602	PRIPAR	MATHLIB
Z033	LINEPG	KERNLIB
Z038	REPINIT	KERNLIB
Z039	REPFL	KERNLIB
Z200	XBAS	KERNLIB
Z202	IXFPZL	KERNLIB
Z260	EQUBUF	KERNLIB
Z261	KFILE	KERNLIB

In addition, a new set of routines, including some fairly heavily used random number generators, have been declared obsolete and scheduled for eventual deletion. This set includes the following entries.

CODE	PACKAGE	LIBRARY
C333	CLOGAM	MATHLIB
E401	ECTRAD	MATHLIB
E410	CPSC	MATHLIB
H100	SIMPLE	MATHLIB
H300	ASSIGN	MATHLIB
G900	RANF	KERNLIB
G901	RAN2VS	KERNLIB
V100	RANNOR	KERNLIB
V101	NORRAN	MATHLIB
V102	NORMCO	MATHLIB
V104	RNDM	KERNLIB
V105	NRAN	MATHLIB
V106	RN32	MATHLIB
V107	RNDM2	MATHLIB
V108	RG32	MATHLIB

All FNAL users are urged to review their use of these routines and seek out substitutes before the above listed routines actually disappear.

As of this release of the CERN library at FNAL, GEANT has been removed from the CERN product kit and is being maintained separately. Thus, GEANT users will need to issue the command

```
setup geant
```

in addition to whatever other products they may need. These changes are discussed in more detail in a separate article.

There are a number of new or enhanced features available with this release of PAW, COMIS, HIGZ/HPLOT and KUIP. All of these are discussed in some detail in either issue 215 of the CERN newsletter or in the PAW 2.04 release notes, found in CERN_ROOT:[DOC] (VMS) or in $CERN_DIR/doc (Unix). Consequently, we will not elaborate on any of that here.

As usual, users are invited to take this new release of the CERN library out for a test drive. Approximately one month after this release was put into the test area, it will be moved into the current area and become the default. That change will be accompanied by all the usual advanced warnings, of which this article should be considered the first.

John Marraffino, x4493, marrafino@fnal.gov

C D

GEANT News

In the past, we have released GEANT as part of the CERN product. However, this does not allow us to keep up with important changes. Therefore, as of CERN release v94a, GEANT will be released as a separate product only. Note that the product is named GEANT, not GEANT3.

The first such release of GEANT is GEANT 3.21. The batch version of GEANT 3.21 may be linked with any CERN release, but the interactive version requires v94a or higher. The interactive version of GEANT must be linked with pawlib, graflib, grafX11, packlib, mathlib, and kernlib.

The main features of GEANT 3.21 are:

- New faster tracking logic based on the 'virtual divisions' algorithm. It is completely backward compatible and transparent (initialized in a negligible amount of time by GGCLOS). No changes are needed in the user code.
- Extension of the GEANT geometrical topology (based on the new MANY): boolean operations are now possible between GEANT volumes; protuding MANY daughters are automatically clipped by their mother; divisions along arbitrary axis are allowed. The speed of the tracking in MANY volumes is now very close to the one in ONLY volumes.
- Improvements in the logic of low energy e.m. processes in order to exploit the physics introduced in 3.16, without overhead in performance compared with 3.15. Improvements for delta ray productions close to the energy cuts.
- New ray-tracing package for the visualization of the geometry. It provides light processing and realistic rendering. Based on the new GEANT tracking, it is a strong debugging tool both for the geometry and for the tracking media definition.

Lynn Garren. garren@fnal.gov

C D

Graphics

Our agreement with Visual Numerics (formerly Precision Visual) has been modified for this year to fit more closely with current budget parameters and technology. The changes are as follows:

Operating Systems Supported

VAX, Sun, and SGI licensing remains the same. That is, all CPU of these types may be equipped with the DI3000 software and available drivers (see item 3 below). Installation of the software on any of these CPU is covered by our annual fee. Users wishing to install on a new CPU of these types need only fill out the online form and forward to compdiv@fnal.

Our Amdahl license has been replaced with a site-wide AIX license. The AIX version of the software will be released as soon as possible. As we have not received our tapes.

Products

We will be supporting DI3000, PicSure Plus/TextPro (VAX only), and Extended Metafile System w/CGM. GK2000 will no longer be supported.

Device Drivers

The following device drivers will be provided on all platforms:

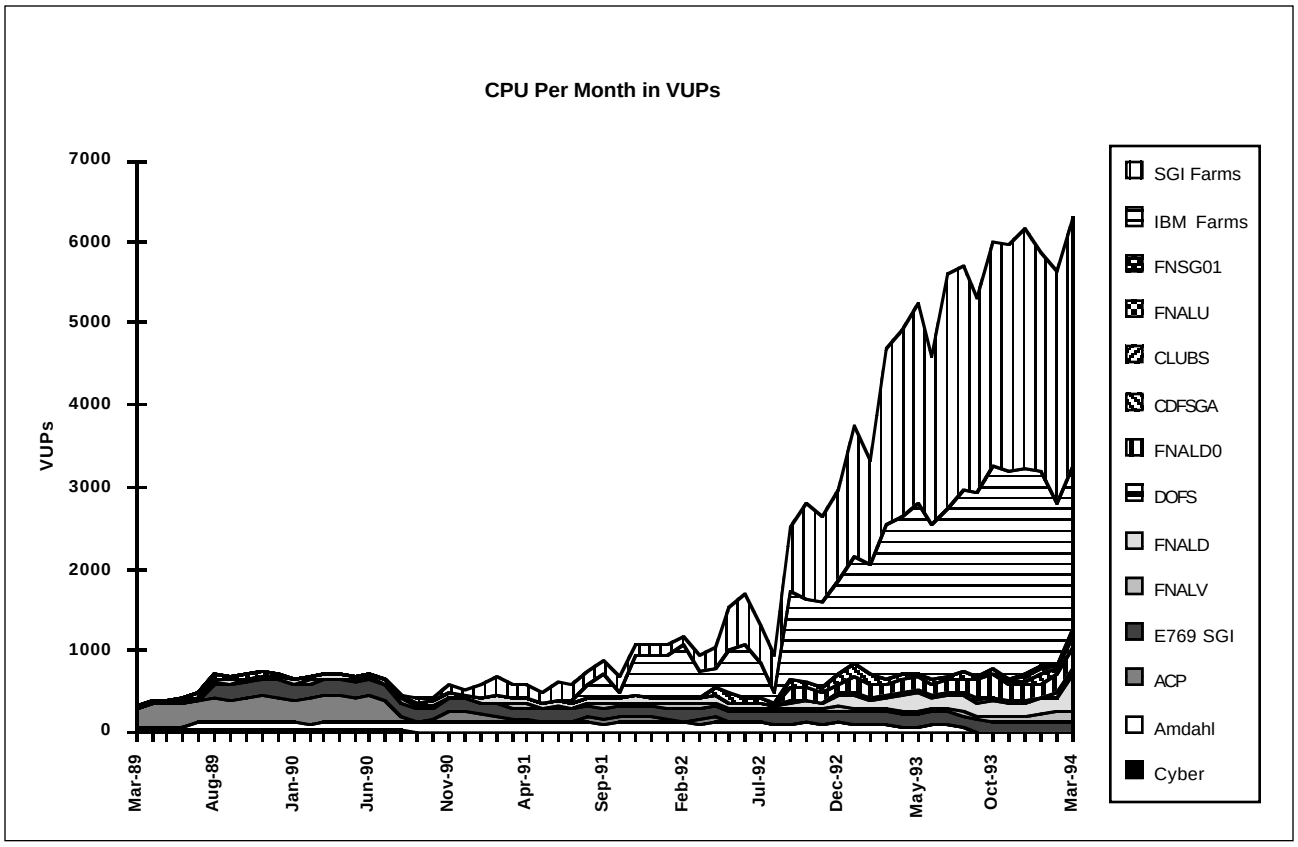
- X11 ((X windows driver)
- 240 (DEC VT240/241 terminal)
- 340 (DEC VT330/340 terminal)
- t14 (Tektronix 4014 terminal
- pst (Postscript)
- tl8 (Talaris)

Additionally, DGL, the Distributed GL driver for SGI, will be supported on that platform.

We feel that this set of device drivers should suffice for current needs.The fact is that there is really very little support for the other, older drivers from Visual Numerics, and so it is not cost effective for us to support them.

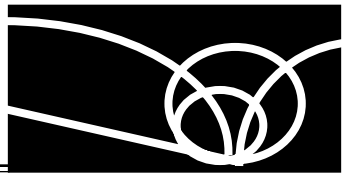
Please forward questions concerning this arrangement to Jeff Kallenbach, jeffk@fnal.

Jeff Kallenbach, x2210, jeffk@fnal.gov



Computer Usage by Platform

A Guide to Computing Division Services



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NEW ACCOUNTS, REQUESTS, WH8X x3205
FCC FAX x3785
FAX 8th Floor x2783
HELP DESK x2345
DATA CENTER SERVICES x2746
Keith Coiley, Group Leader x2755
EQUIPMENT LOGISTICS SERVICES (PREP)
Inquiry Service Counter (3rd floor Feynman) x3447
Computer Hardware Service Requests x4373
Data Communications Problems x3239
Hardware Contract Inquiries x8276
John Petriello, Group Leader x5144
DATA COMMUNICATIONS, Trouble Reporting x3239
COMPUTER HARDWARE
Trouble Reporting x4373
EQUIPMENT SUPPORT DEPARTMENT
Repair Inquiry x2688
Chuck Andrle x4697
DIVISION MANAGEMENT
Joel Butler, Division Head x3148
Vicky White, Deputy Division Head x3936
Irvin Gaines, Associate Division Head x4022
Gerry Bellendir, Assistant Head x3930
Judy Nicholls, Assistant Head for User Agreements x3989
Carl Swoboda, Assistant Head x4602
Al Thomas, Assistant Head for Contracts x3064
Art Neubauer, Equipment Manager x3568
COMPUTER PROTECTION PROGRAM MANAGER
Irwin Gaines x4022
NEWSLETTER EDITOR
Judith Nicholls x3989

COMPUTER DIAL-UP NUMBERS AND PORT SELECTOR CLASS CODES

up to 14400bps v32bis/MNP1 840-8134
Callback System up to 14400 bps 840-8555
FNALV VAX Cluster ..... FNALV
FNALD VAX Cluster ..... FNALD
Internet Protocol ..... IP
Terminal Server ..... LAN
DECserver, 580 ..... DS550

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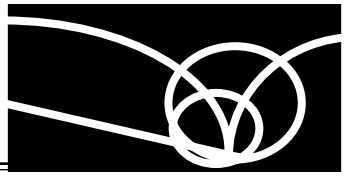
Change of Address



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